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DIVISION OF OIL, GAS AND MINING

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July 15, 2002

CERTIFIED RETURN RECEIPT
7099 3400 0016 8895 5170

Ernie Ray Hale, President
Sierra Stone, Inc.
P.O. Box 48
Oakley, Idaho 83346

Re: Initial Review of Notice of Intention to Commence Large Mining Operations, Sierra Stone, Inc., Sierra Stone Quarry, M/003/049, Box Elder County, Utah

Dear Mr. Hale:

The Division has completed a review of your draft Notice of Intention to Commence Large Mining Operations for the Sierra Stone Quarry located in Box Elder County, Utah, which was received March 8, 2002. After reviewing the information, the Division has the following comments that will need to be addressed before tentative approval may be granted. The comments are listed below under the applicable Minerals Rule heading. Please format your response in a similar fashion. Please provide a response to this review by August 15, 2002.

The Division will suspend further review of the mine NOI until your response to this letter is received. If you have any questions regarding this review, please contact me or Lynn Kunzler at (801) 538-5286 and 538-5310, respectively. If you wish to arrange a meeting to sit down and discuss this review, please contact us at your earliest convenience. Thank you for your cooperation in completing this permitting action.

Sincerely,

D. Wayne Hedberg
Permit Supervisor
Minerals Regulatory Program

jb
Attachment: Review
cc: Mike Ford, BLM, SLFO
O:\M003-Box Elder\M0030049SierraStone\final\review-7-15-02.doc

REVIEW OF NOTICE OF INTENTION TO COMMENCE LARGE MINING OPERATIONS

Sierra Stone, Inc.
Sierra Stone Quarry

M/003/049

R647-4-104 – Operator(s) Surface and Mineral Owners

104.2 Surface ownership
Please provide a map that shows the adjacent landowners. Also, please provide the name and address of each adjacent landowner. (LK)

104.2 Mineral Ownership
The Notice incorrectly identifies the mineral ownership as private (American Stone, Inc. under contract of sale to Ernie Hale). The Mineral ownership is federal (BLM). Please confirm and correct this permit application information. (LK)

R647-4-105 - Maps, Drawings & Photographs

105.1 Topographic base map
The application text and maps need to be revised to reflect current and planned disturbances located within Section 22, T14N, R17W. (LK)

105.2 Surface facilities map
Map B-2 shows an access road of approximately 4,522 feet. Is this access route part of the proposed operations? Please clarify. (LK)

Map B-3 indicates acreage measurements from DOGM. Please note, DOGM did NOT calculate these acreages. Please revise this map accordingly. (LK)

The soil stockpile areas need to be shown on a map. The text of the application indicates excess subsoil for interim and final reclamation will be stockpiled on inactive areas of the waste dump and quarry, primarily on the northeast portion of the flat or gently sloping portions of the dump. In Section 107.5, the application says that the plan is to establish subsoil stockpiles at various locations along the margin of the quarry and the dump. The proposed stockpile locations need to be identified on a map. (DJ & PBB)

A recent inspection of the site identified areas of current disturbance outside the proposed permit boundary. Please revise the permit area maps to correctly identify all ***current*** disturbances associated with this operation. This includes the re-alignment of the access road, the widening of the access road, and the equipment and product storage area. The maps need to correctly show the location of the various features for the ***proposed*** permit disturbances as well. (LK)

R647-4-106 - Operation Plan

106.5 Existing soil types, location, amount
Information in the application concentrates on soils to the ***west*** of the quarry. Topsoil in this area is about two to six inches thick with up to forty feet of subsoil. The operator took one soil sample and had it analyzed for electrical conductivity, pH, nitrogen,

potassium, phosphorous, and organic matter. The Utah State University Soils Laboratory recommended adding some nitrogen fertilizer upon reclamation, but other characteristics were good. Organic matter content was relatively high at 5.4 percent. The portions of the Natural Resources Conservation Service soil survey included in the application confirm the general information in the application and give information about soil texture. (PBB)

The operator needs to include information about how much soil is available to be salvaged on the ***east*** side of the operation. (PBB)

106.6 Plan for protecting & redepositing soils

The plan discusses harvesting soil for the 3.1-acre pit expansion, but does not indicate whether soil and subsoil will be harvested from the area of the 3.9 acre dump expansion. There is no specific commitment to salvage soils from the 2.2 acres of new road construction, but the reclamation plan says soil and subsoil cut from construction of the haul road will be brought back upslope and the area regraded to near natural slope. Please indicate the quantities of topsoil and subsoil that will be harvested and where it will be stockpiled. The cost of reapplication needs to be applied to the surety cost estimate. If storage will require additional area, please indicate this additional area in the total affected area of the site. (DJ & PBB)

The application indicates that, for safety reasons, it will not be possible to salvage topsoil from all of the pit expansion area, but subsoil will be salvaged from this entire area. Please explain why it is possible to salvage subsoil from this entire area, but it is not possible to salvage all of the topsoil. (PBB)

106.7 Existing vegetation - species and amount

The application states that the operator requests the assistance of the Division of Oil, Gas and Mining to complete the required vegetation surveys. It does, however, give some basic vegetation cover information estimated by the operator, and species information from the soil survey report. The Division requires site-specific information about the species and also needs to be able to verify the cover estimates made by the operator. During a site inspection on June 19, 2002, Division biologists found vegetation ground cover adjacent to the quarry disturbances to be approximately 80%. The reclamation success standard for this site would be 56% ground cover. Species observed included onion grass (predominant grass), basin wildrye, quaking aspen, chokecherry, snowberry, mountain big sage, bluebells, phlox, bulbous bluegrass, and wild geranium. This information should be included in the large mine permit application. (PBB & LK)

106.9 Location & size of ore, waste, tailings, ponds

The plan indicates that during reclamation, some of the waste will be pulled back up-slope to the quarry pit and spread with the dozer. The cost of this activity is not reflected in the surety estimate. Please revise the estimate to include this cost information. (DJ)

If the final dumps are completed at the heights shown in the cross-sections, it will be necessary to pull several lifts of waste back up-slope before a 2h:1v slope can be

attained. In the area where the final dump toe is completed to the edge of a county road, the operator will need to pull enough material back up the slope to create a 2h:1v or less steep slope. Please revise the cost estimate to reflect this reclamation effort. (DJ)

R647-4-107 - Operation Practices

107.5 Suitable soils removed & stored

The operator needs to clarify the commitments to salvage subsoil and provide for adequate soil salvage that the site can be revegetated. According to Section 106.6, 2260 cubic yards of topsoil will be salvaged from the expanded quarry area to the west of the existing quarry. This same section says the maximum volume of subsoil that **could** (emphasis added) be stockpiled is 114,700 cubic yards, but it does not say how much subsoil will actually be harvested from this area. The application needs to contain this information. (PBB)

The application says some subsoil/waste rock mixture may be recovered from the waste dump as it is rehandled and pushed to the east with development of the new benches. The Division realizes it may be difficult to estimate the amount of soil that will be available in this area, but an estimate is needed in order to determine whether revegetation would be feasible and for bond calculation purposes. (PBB)

As discussed above, the Division also needs information about how much soil is available in the waste dump expansion area and in the area where the new road is to be built. (PBB)

The amount of subsoil that needs to be harvested from the quarry expansion area depends largely on how much soil can be recovered from new disturbances in the road and expanded waste dump areas. While it may not be necessary to salvage all of the subsoil, some of it will almost certainly be needed in the area of the existing quarry. Amending a substitute topsoil with manure has been used at other locations where little or no soil has been available, but subsoil or topsoil works much better. In this case, subsoil should be used because it is available. (PBB)

The application says excess subsoil for interim and final reclamation will be stockpiled on inactive areas of the waste dump and quarry. The Division is concerned that this could lead to loss of the soil resource. The storage areas need to be located in a way that they are protected from erosion and contamination and so the soil will not be inadvertently treated as waste or used as fill. If the soil is stockpiled in these locations, the operator needs to clearly mark it so it will only be used as soil for reclamation. The application needs to contain a commitment to this effect, or the operator needs to discuss a different storage location. (PBB)

107.6 Concurrent reclamation

The operator plans to reclaim concurrently with operations if it does not limit operating efficiency. Portions of the quarry and waste dump will be graded and seeded as the highwall advances to the west. Some soil material will be recovered from the waste

dump and quarry areas. Map E shows those areas where concurrent reclamation will take place. ***The operator has complied with the requirements of this regulation.*** (PBB)

R647-4-109 - Impact Assessment

109.1 Impacts to surface & groundwater systems

The route of the proposed access road cuts across a spring as shown on Map C. The Division recommends avoiding any wet areas if at all possible. Is it possible to construct the road above the spring and avoid this wet area? (TM)

109.2 Impacts to threatened & endangered wildlife/habitat

The application says there are no known threatened or endangered species in the area. There are at least three species that could occur in the area at times: the bald eagle, Canada lynx, and gray wolf. Although suitable habitat is available, neither the gray wolf nor the Canada lynx has been seen in Utah in many years, and the closest known bald eagle nest is south of the Great Salt Lake. ***The operator has complied with the requirements of this regulation.*** (PBB)

109.4 Slope stability, erosion control, air quality, safety

The plan indicates that both the county road and proposed access road will be located directly below active dumps. This will create unsafe conditions due to the possibility of rocks rolling onto active roads. Please detail what safety measures will be taken to protect traffic traveling in these areas. (DJ)

R647-4-110 - Reclamation Plan

110.1 Current & post mining land use

The current and postmining land uses are wildlife habitat and grazing. The operator has not proposed any changes. ***The operator has complied with the requirements of this regulation.*** (PBB)

110.2 Roads, highwalls, slopes, drainages, pits, etc., reclaimed

A 3850-foot haul road is planned from the south end of the quarry and is projected to affect 2.2 acres. This road is being placed on a steep slope; the construction will result in a side-cast type of road. The affected area of this road should be calculated indicating the total area impacted by this construction, not just the width of the actual roadbed. Because the new road contains switch-backs, the overall width of the road will have to be increased to allow for the trucks and trailers to negotiate the curves. The surety estimate should reflect the cost of reclaiming a side cast road.

Map C also indicates that as a result of this new road, ~1150 foot of new road will be constructed to replace a section of Lon Thomas's road and ~1500 feet of the original road base will need to be reclaimed. No mention of this additional disturbance and reclamation responsibility is made in the plan or reflected in the surety. Please make appropriate adjustments to the plan and surety estimate. (DJ)

The plan states that new highwalls will be reduced in slope and pits will be partially backfilled with waste material. Cross sections included do not indicate where this activity will take place. Please indicate on a map where these areas are located and include cross sections to show the amount of back filling and slope reduction that will take place. (DJ)

The plan indicates that pits will be sufficiently backfilled to allow for natural drainage of the pit areas. Cross sections included show the pit floor sloping to the highwall and no indication of backfilling to preclude ponding of water at the pit face. Please correct cross sections to show this backfilling and include additional material handling in the surety estimate to address the reclamation proposal. (DJ)

110.3 Description of facilities to be left (post mining use)

The operator proposes to leave the workers' camp west of the quarry for the use and enjoyment of the operator following completion of quarrying activities. The road to this camp would also be left, but it appears this road existed before the mine was permitted. The surface owner is listed as Pickett Land and Sheep Company. This surface owner is not the same as the operator. For the Division to allow the camp to remain, the operator will need to provide documentation showing the land owner's intended desire and use of the camp area. This documentation also needs to state that the land owner will assume any reclamation responsibility for this area. Please note, the camp area must still be included in the reclamation surety. Should the alternative land use still be viable at the time of mine closure, reclamation will not be required. (PBB & LK)

110.5 Revegetation planting program

Although the application indicates soil will be reapplied to the roads, it does not say how much soil. Please provide this information. (PBB)

The operator intends to salvage 2260 cubic yards of topsoil, and 114,700 cubic yards of subsoil *could* be stockpiled. This would be enough to cover the entire 21.7-acre disturbed area (this figure excludes the camp and topsoil storage area) with an average of 3.34 feet of soil material, but the operator has not actually committed to salvage this much soil. This would be adequate for revegetation even if the floor of the quarry has little growth medium, but it is inconsistent with Map F-1 and with the text in Section 110.2. The cross section (Map F-1) and the text of Section 110.2 indicate soil will be applied 6 or 12 inches thick, and on page 14, the application says no subsoil/topsoil mixture will be added unless it was removed during operations. This latter statement appears to apply to equipment and material storage areas. (PBB)

The Division is concerned that 0-12 inches of soil is not adequate to sustain plant growth. There needs to be at least two or three feet of unconsolidated rooting material, and the application indicates at least this much is available. As discussed under Section 107.5 of this review, the operator needs to clarify how much soil will be available and salvaged in the waste dump, old quarry, and road construction areas. With this information available, the Division and operator can consider how much additional soil is needed for these areas. (PBB)

The application has some discussion about which areas will be ripped, but it needs to give some detail about ripping depths and spacing between ripper shanks. It is difficult for the Division to recommend these depths when it is unclear how much soil will be spread over the area. In general, there needs to be at least two to three feet of uncompacted rooting medium. (PBB)

According to Section 110.5(e) of the application, either chemical fertilizer or composted cow manure, whichever is cheapest, will be used if fertilizer is needed. Chemical fertilizer could be used according to the recommendations from the Utah State University Soils Laboratory in the areas where actual topsoil is spread, but where subsoil is used, an organic matter amendment is needed. Composted cow manure has been used successfully at other mines, and the Division will use this for bonding calculations. (PBB)

The application includes a copy of a seed mixture the Division recommended for a nearby mine, but the mix should be modified for this site. A recommended seed mix is attached to this review. (PBB)

Slopes less steep than 3h:1v will be drill seeded if the roughened surface is not too severe. Steeper slopes will be broadcast seeded. While these methods are both acceptable, the Division prefers that the surface be left in a roughened condition that would preclude drill seeding. (PBB)

R647-4-111 - Reclamation Practices

111.1 Public safety & welfare

1.15 Constructing berms/fences above highwalls

Berms will need to be placed along the highwall portion of the site because equipment will be operated in these areas salvaging soil. (DJ)

111.5 Land capable of post mining land use

The proposed reclamation contours for the highwall will be steep enough that it will preclude livestock grazing. Otherwise, the land configuration should support the wildlife and grazing postmining land use. The operator has complied with the requirements of this regulation. (PBB)

Revegetation of the area should be feasible if there is adequate soil and if the operator adds organic matter. Although the seed mix has not been determined, the mix in the application, potentially together with other species that are commercially available, would give adequate vegetation cover capable of supporting the post mine land use. (PBB)

R647-4-112 - Variance

The operator did not request any variances. (PBB)

R647-4-113 – Surety

The equipment portion of the surety indicates only two hours would be required to remove the equipment from the site. A minimum of a loader, trackhoe, and the camp trailer will need to be removed. It will require more than two hours to load and remove this equipment; please recalculate this portion of the surety. (DJ)

Surety calculations indicate that soil/subsoil replacement will be accomplished using only a dozer. Because the soil stockpile is located above the highwall, a loader and truck will need to be used to move the soil to the pit floor before the dozer can be used to spread the material. Depending on where the subsoil stockpiles are located, the truck and loader may have to be used to move some of this material, also. (DJ)

The plan discusses the use of either a chemical fertilizer or composted manure as an amendment for the material being placed for reclamation. The surety only indicates use of a commercial chemical fertilizer; however, using the reclamation plan as written, organic matter will need to be added to the soil to have successful revegetation. Please calculate the surety using composted manure as the amendment medium. (DJ)

The surety indicates ripping of the following areas: waste dump tops – 2.4 acres, soil stockpile area – 0.5 acres, haul road – 2.2 acres, and pit floor – 8.3 acres. This totals 13.4 acres and the total acres to be seeded is 22.2 acres. The remainder of this total acreage will need to be ripped before seed is applied. (DJ)

If a drill seeder is to be used for a portion of the seeding at the site, additional equipment will need to be mobilized to accomplish final reclamation. (DJ)

Recommended Revegetation Species List for
Sierra Stone, Inc.
Sierra Starlight Quarry
M/003/049

Common Name	Scientific Name	Seeding Rate (Pounds PLS/Acre)
Basin Wild Rye	*Elymus cinereus*	2
Slender Wheatgrass	*Elymus trachycaulus*	3
Bluebunch Wheatgrass	*Elymus spicatus*	2
Big Bluegrass	*Poa ampla*	1
Mountain Brome	*Bromus carinatus*	2
Thickspike Wheatgrass	*Elymus lanceolatus*	2
Rocky Mtn. Penstemon	*Penstemon strictus*	0.5
"Ladak" Alfalfa	*Medicago sativa*	0.5
Small Burnett	*Sanguisorba minor*	1
Mountain Big Sage	*Artemisia tridentata vaseyana*	0.2

(Rate shown is for broadcast seeding. If seed is drilled, the rate could be reduced by 25 percent.)